

Claims

The following is a copy of Applicants' claims that identifies language being added with underlining ("____") and language being deleted with strikethrough ("—"), as is applicable:

1. (Currently Amended) A microelectromechanical system (MEMS) filter system, comprising:

a first microelectromechanical system (MEMS) resonator comprising a first resonating element; and

a second MEMS resonator comprising a second resonating element, the second resonating element closely spaced and mechanically separate from the first resonating element ~~MEMS resonator~~, wherein the first MEMS resonator is coupled to the second MEMS resonator through the electrostatic force acting between resonating portions of the MEMS resonators; and one or more additional MEMS resonators electrically coupled to the first MEMS resonator, the second MEMS resonator, or the first and second MEMS resonators.

2. (Canceled)

3. (Previously presented) The system of claim 1, wherein the electrical coupling between the first MEMS resonator and the second MEMS resonator includes an effective shunt capacitance to ground.

4. (Previously presented) The system of claim 1, wherein the first MEMS resonator is capacitively coupled to the second MEMS resonator.

5. (Previously presented) The system of claim 1, wherein the first MEMS resonator and the second MEMS resonator are conductive.

6. (Previously presented) The system of claim 1, further including a direct current (DC) voltage source, a first terminal coupled to the first MEMS resonator, and a second terminal coupled to the second MEMS resonator, wherein a first DC potential is imposed on the first terminal and a second DC potential different from the first DC potential is imposed on the second terminal.

7. (Previously presented) The system of claim 6, wherein responsive to the imposition of the first and second DC potentials to the first and second terminals, at least two frequency resonance peaks are elicited.

8. (Previously presented) A microelectromechanical system (MEMS) filter system, comprising:

a first filter, including:

a first MEMS resonator and a second MEMS resonator; and

a coupling element disposed between the first and the second MEMS resonators and mechanically separate from the resonating portions of the resonators, wherein the second MEMS resonator, the first MEMS resonator, and the coupling element are electrically coupled.

9. (Previously presented) The system of claim 8, further including at least one additional filter of like structure to the first filter, the at least one additional filter electrically coupled to and separate from the first filter.
10. (Previously presented) The system of claim 8, wherein the first MEMS resonator and the second MEMS resonator are electrically coupled with a shunt capacitor to ground disposed between the first MEMS resonator and the second MEMS resonator, further including a direct current (DC) voltage source, a first terminal coupled to the first MEMS resonator, and a second terminal coupled to the second MEMS resonator, wherein a first DC potential is imposed on the first terminal and a second DC potential different from the first DC potential is imposed on the second terminal.
11. (Previously presented) The system of claim 8, wherein the first MEMS resonator and the second MEMS resonator are electrically coupled using a series capacitance disposed between the resonating body of the first MEMS resonator and that of the second MEMS resonator wherein responsive to the imposition of the first and second DC potentials to the first and second terminals, at least two frequency resonance peaks are elicited.
12. (Original) The system of claim 8, wherein the first MEMS resonator and the second MEMS resonator are electrically coupled using an active component disposed between the first MEMS resonator and the second MEMS resonator.
13. (Original) The system of claim 12, wherein the active component includes an amplifier.

14. (Currently Amended) A communications device, comprising:
a receiver; and
a microelectromechanical system (MEMS) filter system disposed in the receiver,
the MEMS filter system comprising:
a first MEMS resonator comprising a first resonating element; and
a second MEMS resonator comprising a second resonating element, the
second resonating element closely spaced and mechanically separate from the first resonating
element ~~MEMS resonator~~, wherein the second MEMS resonator is electrically coupled to the
first MEMS resonator; and
one or more additional MEMS resonators electrically coupled to the first MEMS
resonator, the second MEMS resonator, or the first and second MEMS resonators.
15. (Original) The communications device of claim 14, further comprising a transmitter.
16. (Currently Amended) The communications device of claim 15, wherein the transmitter
comprises a second MEMS filter system, the second MEMS filter system comprising:
a third MEMS resonator comprising a third resonating element; and
a fourth MEMS resonator comprising a fourth resonating element, the fourth resonating
element closely spaced and separate from the third resonating element ~~MEMS resonator~~, wherein
the fourth MEMS resonator is electrically coupled to the third MEMS resonator.
17. (Previously presented) The communications device of claim 14, further including a
coupling element disposed between the first MEMS resonator and the second MEMS resonator,

wherein the second MEMS resonator, the first MEMS resonator, and the coupling element are electrically coupled.

18. (Previously presented) The communications device of claim 17, wherein the coupling element comprises an active device.

19-20. (Canceled)

21. (Newly Added) A communications device, comprising:

a receiver; and

a microelectromechanical system (MEMS) filter system disposed in the receiver,

the MEMS filter system comprising:

a first filter, including:

a first MEMS resonator and a second MEMS resonator; and

a coupling element disposed between the first and the second MEMS resonators and mechanically separate from the resonating portions of the resonators, wherein the second MEMS resonator, the first MEMS resonator, and the coupling element are electrically coupled.